FSA Integration Partner

United States Department of Education

Federal Student Aid

Data Strategy Enterprise-Wide

Data Framework Team

123.1.3 Data Quality Mad Dog Report

Task Order #123

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Executive Summary

The Data Quality Mad Dog Report highlights the high priority data quality issues facing Federal Student Aid (FSA) data owners. Addressing and ultimately resolving these issues is the first step towards enabling the delivery of more accurate and reliable data on a timely basis. Externally, FSA will better meet its customers and partners expectations for immediate and precise answers to questions and updates to information. Internally, FSA will reap increased quality and reliability in its reporting and analytics and decrease risk associated with funds management. These outcomes also address the issues of waste, fraud, and abuse within FSA's programs that the Inspector General of the Department of Education, John P. Higgins, testified about in a statement made before the House Budget Committee on July 9th, 2003.

The Data Quality Mad Dog Report serves as the catalyst for establishing an on-going, enterprise wide data quality methodology. The next step in this process is the creation of a Data Quality Assurance Plan that will define this concept in more detail and provide the framework necessary to create a viable FSA data quality assurance strategy. Implementing this process will result in the creation of standard definitions and data clean-up scripts that signify the beginning of the data quality maturity at FSA.

As outlined in the Data Strategy Statement of Strategic Data Focus Areas, the data quality maturity model is a key component of the overall Data Strategy. This maturity model starts with correcting and standardizing data critical to the FSA mission. This will be performed through the creation and adherence to core component standards and common definitions that will be generated through the XML Framework initiative. Next it focuses on validating data through shared processes as data enters FSA systems. Subsequent stages enhance the reliability and accuracy of data stores by implementing repeatable reconciliation processes that keep data in synch across the enterprise. The later stages of maturity realize the ability to execute audits that independently validate data across systems and ultimately enable the execution of decision driving analytics.

The Mad Dog team's goal was to identify issues that, when addressed, will have the highest impact to FSA's Strategic Objectives. After prioritizing in this manner, the team concluded that these issues naturally fell into the following groups:

- Common Identification Methods for Students, Trading Partners and Aid
- Data Exchange Improvements and Isolated Data Cleansing
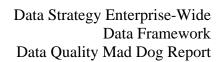- Education and Communication Regarding Data Usage for Analytics

These needs align with three of the Outcomes and Enablers identified by the Business Integration Group (BIG) to frame the target vision for FSA.

- Easier Access for our Customers
- Provide the Right tools and Data to Users in Order to Achieve the Desired Outcomes
- Support Effective and Informed Decision Making

With the issues identified, prioritized, and grouped, the Data Quality Mad Dog team developed the following recommended solutions:

Functional Grouping	Issue	Recommendation
Common Identification Methods	Records submitted to FSA systems with incorrect identifiers can result in the creation of an invalid student/borrower. This affects the ease of downstream systems' correction updates.	Implement a Standard Student Identification Method (SSIM), establish SSA match criteria for all student data "entry points," create rules for changing identifiers and resolving identifier conflicts.
	There is no ability to pull data from systems across the lifecycle to present a single, integrated student view complete with the current status of a student's aid and "workflow" indicators relative to that student.	Implement a Standard Student Identification Method (SSIM) and create a data warehouse/central repository that holds student data from across the enterprise and lifecycle stages.
	There are no means within the enterprise to identify a Trading Partner Institution and its relationships to other entities so that data from multiple stores within FSA can be aggregated for viewing or research.	Implement the Routing Identifier (RID) as part of a new Integrated Partner Management (IPM) solution.
	There is no enterprise standard to uniquely identify a loan; currently the underlying loans for FFEL consolidations are not always identified.	Require Guaranty Agencies (GA) to report underlying loan information for FFEL Consolidations. Create an internal method for identifying loans that can easily be adopted by FSA's trading partners.
Data Reconciliation and Analytics	Information about loans held by Guaranty Agencies for collections (defaulted, but not assigned) is not being reported at a high level of accuracy.	Establish Reasonability levels for GA Form 2000 data and analyze reasons for inaccuracies. Then, coupled with the creation of a new data warehouse/central repository, begin calculating claims and collections totals using the reported details.
	The Application business process Central Processing System (CPS) needs disbursement updates as soon as possible for use in the verification and selection process. This would reduce the number of extraneous communications (ISIRs) to schools who no longer need information about a student who will not be attending their institution.	Consolidate the data used during Application with the data used in the Origination and Disbursement business process. As an interim solution, implement a Message Oriented Middleware or a deployed service that notifies the Application system when disbursements are received.

Functional Grouping	Issue	Recommendation
	It is possible for a FAA to make changes to an applicant's EFC, or other aid influencing data, due to extenuating circumstances that cannot be communicated on the FAFSA. These changes are made at the school and are not consistently reported to FSA. FSA should capture all changes to EFC information.	Consolidate the data used during Application with the data used in the Origination and Disbursement business process. As an interim solution, require schools to always report adjusted EFC amounts to CPS.
	The accuracy and consistency of Enrollment status information is not high within FSA systems. More specifically, completion / graduation date received by COD from schools is often incorrect, and PLUS 2nd disbursement date is often not reported on the XML Common Record.	Make the 2nd disbursement date a required field on the XML Common record (This enhancement is currently recommended as part of the '04 implementation). Currently, there is a work around in place for the PLUS 2nd disbursement to be estimated (midpoint between first disbursement date and loan period end date). A Graduation Date fix has already been implemented; COD recently implemented logic to calculate an accurate completion date.
Data Reconciliation and Analytics	GAPS and FMS receive school id status and eligibility data updates at different intervals. This can result in errors being returned from GAPS to multiple systems that send it updates (COD, FMS etc.). This impacts the schools ability to draw money in GAPS.	Update FMS code so that PEPS school file updates are made on a daily basis for all programs. Also, Establish an electronic interface between PEPS and GAPS. PEPS will provide the daily school file and eligibility updates; GAPS will provide DUNS updates that PEPS can in turn distribute to all of FSA's systems.
Data Reconciliation and Analytics	While FMS has error monitoring processes in place for its interfaces, there is no standardized method for distributing error files back to the interfacing internal or external system. Currently FMS only sends error files for the internal system interfaces to COD.	Standardize the FMS error processing by utilizing the current Oracle Alert and Report system more completely. Have Oracle send alert messages to all necessary personnel/systems.
Data Reconciliation and Analytics	There is currently no SSA or INS verification for PLUS borrowers' SSN and citizenship. This can result in the lending of Title IV aid to ineligible borrowers. There is also the desire to have all borrowers pass through verifications pursuant to the USA Patriot Act.	Create a common service integrated into the SSIM solution to which all borrowers can be submitted for verification by SSA, INS, and other required Federal Agencies. Utilize FAFSA or alternative form to collect all the key identifying information necessary to run the validations.
Data Reconciliation and Analytics	DMCS school demographic information is static.	Develop PEPS school file feed to DMCS.
Data Reconciliation and Analytics	There are a number of anomalous names in NSLDS, these errors can prevent record matches.	Implement SSIM logic which ensures matches in cases of anomalous names.
Education & Communication	The FFEL data reported to NSLDS comes from multiple guaranty agencies at varying times (monthly/quarterly) with varying close dates. This makes the picture of FFEL data inconsistent and hard to analyze.	Provide Production Schedule to internal users of NSLDS information to ensure users understand when the data is updated. In conjunction with future interface format redesigns, require more frequent (weekly) feed schedule.

Functional Grouping	Issue	Recommendation
	It is possible for external Trading Partners to sign up for SAIG access using dummy identifiers.	Establish and communicate a policy prohibiting invalid identifiers. Since the documentation of this issue, validity checks have been incorporated into the SAIG Enrollment Web Site. For a more thorough solution, perform a SSA validation.
	If the actual Account Maintenance Fee for a Guaranty Agency is higher than forecasted, FSA informs the Guaranty Agency to pay themselves from the Federal Fund. The participants in the Mad Dog sessions did not have information on how these transactions, as well as the Performance Measures and Voluntary Flexible Agreement (VFA) Fee Payments, are reconciled or monitored.	It is confirmed that there are reconciliation and monitoring tools in place for AMF and VFA Payments. Currently the guidelines are included in the Financial Partner Guaranty Agency Review Guide. This information and where it is published needs to be communicated to both external and internal users via scheduled regional meetings and emails respectively.

Table 1 – Data Quality Mad Dog Priority Issues

Amendment History

DATE	SECTION/ PAGE	DESCRIPTION	REQUESTED BY	MADE BY
07/31/03	All	Document submitted for FSA-wide review.	N/A	N. Brown

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1   Introduction

1.1   Purpose

The purpose of this document is to outline FSA's key data quality issues, as prioritized by FSA system and business owners (Mad Dog Team), and provide an analysis for viable recommendations and solutions to correct the identified issues. Further, these issues and their suggested resolutions represent the beginning of the maturity process for FSA data quality. This maturity process ranges from one time data and process corrections, to repeatable reconciliation services and ultimately to independent audit capabilities which enable reliable, cross system analytics generation.

1.2   Scope

The Mad Dog team's goal was to identify issues that, when addressed, will have the highest impact to FSA's Strategic Objectives:

- Integrate FSA Systems and Provide New Technology Solutions
- Improve Program Integrity
- Reduce Program Administrative Costs
- Improve Human Capital Management
- Improve Products and Services to Provide Better Customer Service

After identifying a full list of data quality issues, the team worked to identify the top ten highest priority issues. The team also needed to indicate whether any of the identified issues could be addressed as a "quick hit," or implemented quickly at a relatively low cost. More detailed research was performed and documented regarding these priorities. It is important to note that while the Data Strategy effort is documenting these data quality issues in more detail, all issues discussed have been captured. More details regarding an ongoing quality control process will be documented in the Quality Assurance Strategy and Implementation Plan (Deliverable 123.1.5).

1.3   Methodology

Throughout the As-Is System Data Flow effort, areas of redundant data and processing inefficiencies became apparent. The Data Strategy Framework Team categorized these inefficiencies as either Business Process related or Data Quality related. The Data Quality related items served as the initial list of issues to be addressed as part of Data Quality Mad Dog effort. In order to verify this list, capture additional issues, identify priority problems and develop recommended solutions, the Data Quality Mad Dog team utilized a three-staged approach: Data Gathering, Consensus Meeting, and finally Detailed Analysis.

1.3.1   Data Gathering

The Data Gathering stage consisted of an initial Analytics/Reporting Session followed by a Business Entity Session. The Analytics/Reporting Session served as the "kick-off" meeting for

the Data Quality Mad Dog effort. During the meeting, the Data Strategy Framework Team met with various FSA and Department of Education users responsible for compiling data for analytics and reporting. The participants gathered, validated, and prioritized data quality issues regarding cross program analytics.

The Business Entity Session used the information gathered in the Analytics/Reporting Session as a starting point. The Business Entity Session began by breaking into small sub-group meetings centered around each of FSA's core business entities: Person, Aid, Financial Partner, and School. At the conclusion of each breakout session, the sub-groups reconvened and reported their results to the entire group. During the Business Entity Session the following items were accomplished:

- Confirmed list of existing issues and added other data issues as identified
- Clarified the wording and meaning of issues
- Indicated and/or verified affected parties and systems
- Prioritized issues within their appropriate sub-group
- Identified any "Quick Hits" from the issue list. A "Quick Hit" was defined as an issue able to be resolved in a relatively short amount of time with moderate resources (e.g. personnel, funding)

1.3.2 Consensus Meeting

The purpose of the Consensus Meeting was to establish an enterprise-wide prioritization for the data issues gathered. Attendees included the FSA personnel involved in the Analytics/Reporting and the Business Entity Breakout Sessions. During the Consensus Meeting the participants:

- Performed an enterprise prioritization of the data quality issues to establish a Top Ten List
- Validated the short list of Quick Hits identified during the Business Entity Breakout Sessions
- Assigned small teams of FSA personnel to perform a detailed analysis of the Top Ten data quality issues

1.3.3 Detailed Analysis

After distinguishing the Top Ten issues and validating the list of Quick Hits, the final stage of the Mad Dog Effort was a Detailed Analysis effort. For each Top Ten and Quick Hit data issue, the FSA Personnel assigned to the issue met with members of the Data Strategy Framework team in small group sessions to analyze each of the priority issues and complete a detailed analysis of the issue and its possible solutions. To facilitate these meetings, a standard form was created to capture the key elements resembling a simplified business justification:

- A detailed explanation of the issue
- Recommended solution, related scope of work, and dependencies
- Business Areas impacted

- Additional data quality issues addressed
- Estimated cost
- Estimated time to implement
- Impacts of not addressing the issue

1.4   Results Achieved

The Data Quality Mad Dog effort provided the means whereby the FSA Business Owners could collaborate and reach a consensus regarding the key issues the enterprise faces today. This issue list is by no means static, but represents those issues that were revealed through conversations during both the Mad Dog and the As-Is data process. While there were a number of issues identified, only approximately 10% were selected as the starting point for addressing FSA's data quality needs. These issues were selected by the key FSA Business Owners and Subject Matter Experts (SMEs) as highest priority or quick fixes. Recommended solutions are provided for this "short list" of issues (see Section 3 for details); however the actual implementation of the solutions is contingent upon additional efforts.

The Mad Dog effort also provided the opportunity for FSA personnel from varying channels, systems, and processes to better understand issues affecting all aspects of the enterprise.   While there have been previous data quality endeavors, they have often been for specific time frames and business areas. The Data Quality Mad Dog Report serves as the catalyst for establishing an on-going, enterprise wide data quality methodology. The Data Quality Assurance Plan will lay this plan out in detail and provide the framework necessary to create a viable FSA data quality assurance process.

2 Key Findings

FSA's systems process all borrower, loan, and trading partner information in an effort to effectively manage the disbursement of aid to students. The efficiency of this organization rests upon the quality of the data contained within it. As data quality degrades, so too does the quality of the organization; as students may not receive timely loan disbursements, schools may not receive funding for student aid and FSA collections of defaulted loans may not occur. To address these potential deficiencies, an on going data quality initiative is imperative. Deliverable 123.1.5 Quality Assurance Strategy and Implementation Plan lays out a data quality plan and provides an implementation guideline for the plan and the FSA To-Be vision.

For the Data Quality Mad Dog Report, the Data Strategy Framework Team worked with the key FSA Business Owners and SMEs to prioritize and select the top 10% of FSA's current data quality issues. The Framework Team then grouped these issues into common data quality processes: Common Identification Methods, Data Reconciliation, Data Analytics, and Education / Communication. Each section below provides a functional description, key benefits, issues and quick fixes identified by the Mad Dog Report.

2.1 Common Identification Methods for Students, Trading Partners and Aid

2.1.1 Functional Description

To date, FSA has largely operated as a collection of siloed systems. Each of these systems has developed unique methods for identifying their core data elements. While some of these elements are system-specific, there are a few key business entities that are common among multiple systems. These entities were defined in the As-Is Data Flow Deliverable as: Person, Aid, School, and Financial Partner. In order for FSA to effectively manage its enterprise through the use of accurate analytics, it is essential that all of the key business entities be commonly recognized by all of the systems.

In conjunction with the current Data Strategy effort, the Routing ID (RID) and Standard Student Identification Method (SSIM) teams have already begun to explore in greater detail the issues, benefits, and possible implementation plans for standard identification methods of Trading Partners (both Schools and Financial Partners) and Students. The possibilities and benefits of a common loan/award identification process have also recently received greater attention from the enterprise. The Data Quality Mad Dog Report highlights these issues and their implications in ensuring FSA's data is managed consistently and accurately.

2.1.2 Benefit Analysis

Disparate identification methods have led to incomplete or fragmented enterprise views of FSA's core business entities. Systems with varying methods of establishing unique identifiers have caused record duplication and poor or inaccurate communication among the systems. Without a method to commonly recognize similar entities, the capability to perform enterprise wide reconciliation is difficult or even impossible.

Common identification methods will not only address these issues that FSA currently faces, but they will also provide a number of additional benefits. The common identifiers coupled with effectively designed tools and technical strategies will support effective and informed decision making by providing accurate information on a timely basis to the right people. FSA will also benefit from simplified customer interactions, streamlined intra-FSA system interactions, enhanced cross-system reporting and analytics capabilities, consistently applied identifier business rules including trading partner relationship management and tracking, and reduced cross-system business processing.

More specifically, a common student identification method will:

- Consistently and systematically link customer records across the FSA enterprise
- Support and process changes and updates to key customer attributes (e.g. updates to SSN, First Name, Last Name, DOB)
- Ensure student privacy protection; minimize unauthorized/unauthenticated access to student data

A common trading partner identifier will:

- Allow Schools and other partners to present only one identifier to FSA regardless of the type of business transaction
- Ensure there are no discrepancies among identifiers stored within different systems
- Help FSA easily gather information about a school or target group across the enterprise
- Create an efficient mechanism for creating user defined or "high-level" relationships of trading partners

A common process for identifying aid awards will:

- Improve the traceability of loans as they are transferred through the enterprise
- Ensure that all underlying loans and their loan types are consistently reported for consolidated loans

2.2 Data Reconciliation and Analytics

2.2.1 Functional Description

The reconciliation process for FSA's data quality effort will be a multi-phased approach that involves the following phases:

- **Rule Determination:** Define the data quality rules for addressing defects based on industry standards and customer input, utilizing Extensible Markup Language (XML) as a facilitating tool.
- **Data Corrections List:** Based on the System Inventory phase, begin applying the quality rules to those systems with the highest priority. To do this, first prioritize the data

within the selected system (usually only a small sample of data will need to be corrected) and than apply the rules to that data.

- **Score the Data:** This represents the quality of the data for a particular rule. Scoring allows quantitative measures to be applied to data quality.
- **Data Cleansing:** Through custom scripts or proprietary database tools, clean and scrub the data for defects.

For the issues and quick hits that have been identified in the Mad Dog effort, potential solutions would involve a data cleansing phase and an analytical phase to ensure the continual quality of the data. The analytical phase would also solve many issues involving the proper exchange of data between systems.

2.2.2   Benefit Analysis

2.2.2.1   Data Cleansing

Data cleansing is part of the data quality plan that provides the standardization of data, reformatting data, consolidating data, or correcting data from the existing application for use by a new application. With a data cleansing initiative, records submitted to FSA systems with incorrect identifiers or without validation from the Social Security Administration (SSA) for Parent Loan Underwriting for Students (PLUS) borrowers would be dramatically reduced. This will increase the quality of data in the downstream systems. Additionally, implementing quick hit fixes could ensure new Financial Aid Administrators (FAAs) do not sign up for Student Aid Internet Access (SAIG) with dummy IDs and National Student Loan Data System (NSLDS) is able to match on anomalous names.

2.2.2.2   Analytics

After a proper scrubbing of the data, an analytical process for identifying additional cross systems issues would display new process trends, data issues, and ensure a continual data quality approach. As part of the analytical phase within a data quality initiative, the improvement of the data exchange process could result in solving problems of inconsistent data or lack of information. For instance, increasing the exchange of enrollment status information with schools and other trading partners could result in better servicing, more exact default rate calculations, and research indicating "success" of the loan program. The following is a synopsis of the data quality issues and quick hits that could be resolved with improved analytical and data exchange processes:

- Increased efficiencies of a data exchange process could also improve updates from Central Origination and Disbursement (COD) to Central Processing System (CPS) regarding the disbursement of Direct Loan and Pell Grant awards for attendees at various institutions. This could reduce the number of extraneous communications (ISIRs, etc.) to schools that no longer need information about a student who will not be attending the institution.
- Currently, the Department of Education's Grants Administrative and Payment System (GAPS) system and FSA's Financial Management System (FMS) system receive school

identifier status and eligibility data updates at different intervals. This can result in errors being returned from GAPS to multiple systems that send it updates (COD, FMS, etc.). This impacts the schools' ability to draw down money from GAPS. Better data exchange technology, one that allows easier corrections and additions to the data flow, could correct this problem.

- With a standardized method or reporting interface errors, FMS can ensure error processing is timely and source systems are aware of any problems they may need to help resolve.
- Better analytics need to be gathered on schools' FAA activities as it has been discovered that a FAA can make changes to an applicant's Expected Family Contribution (EFC) calculation, (or other aid influencing data), due to extenuating circumstances that cannot be communicated on the Free Application For Federal Student Aid (FAFSA) (e.g. high medical bills or other expenses). These changes are made at the school are not consistently reported to FSA. This could result in a student's aid package that does not correspond with the student's eligibility as determined by CPS.
- School data (demographic information about the institutions) in Debt Management Collection System (DMCS) has not been updated within the last year. DMCS needs accurate school demographic information, including a valid school ID. This information is pivotal to the collections business process. DMCS accepts loans for assignment and servicing based on a number of edits, one of which is if the school ID submitted by the assigning entity is "valid." If there is no matching school ID on the DMCS database, the school identifier is considered to be invalid, and the loan is rejected. When this occurs, it is impossible for DMCS to accept the loan for assignment/servicing.

2.3   Education and Communication

2.3.1   Functional Description

Valid data does not ensure accurate analytics. Data provides useful information only when examined in an organized environment and presented in an accurate way. Without proper education and communication, data may be misinterpreted and may provide misleading information.

Throughout the Mad Dog exercise, the lack of understanding of data, business processes, and the resulting implications on the quality of the enterprise's analytics were discussed. While improved technology may aid in resolving these issues, only improved understanding of the processes will fully address the problems. Three of the Quick Hit issues were noted as potential areas for better business process communications:

- Data comes from multiple GAs at varying times of the month, with varying financial close dates. This timing and scheduling of the Federal Family Education Loan (FFEL) data reporting process (Lender to GA, GA to NSLDS), and its impact on the usage and analysis of this data needs to be better communicated to FSA data users.

- Internal FSA communication needs to be created and distributed regarding Voluntary Flexible Agreement (VFA) Performance Measures and Account Maintenance Fee (AMF) forecasting.
- Schools, GAs, and Lenders need to be informed that dummy ID values are not allowed when enrolling in SAIG.

2.3.2 Benefit Analysis

Miscommunication and lack of understanding of the enterprise's data can be costly and result in poor management decisions. By simply creating a new policy, publishing a Dear Colleague letter, or ensuring a procedure is properly documented, FSA can see increased accuracy in its analytical information and consequently increased effectiveness in its management decisions.

An initial step towards improving FSA's communication and education is to address the three previously mentioned Quick Hit issues. By addressing these issues, FSA will see the following benefits:

- More thorough communication of NSLDS' processing schedules will allow for improved FFEL analytics. FSA will be able to better manage its trading partners and their participation in the FFEL program.
- Understanding the reconciliation measures for AMF and VFA Fees will increase FSA's effectiveness of GA oversight and will ensure compliance to prescribed procedures.
- Stressing the importance of accurate ID values will inherently increase the effectiveness of SAIG enrollment and access security. There will also be reduced costs required for clean-up of invalid IDs.

3 Recommendations

For each of the Top Ten and Quick Hit issues a detailed analysis was conducted and potential solutions were documented by key FSA Business Owners and SMEs working with members of the Data Strategy Framework Team. The Description, Impacted Business Areas and Projects, and Recommended Implementation Details collected for each of the issues is presented in this section (See **Appendix A** and **Appendix B** for the full detailed analysis forms).

3.1 Cross-System Student Identifier Conflicts

3.1.1 Description

Records submitted to FSA systems with incorrect identifiers can result in the creation of an invalid student/borrower. While the systems have varying logic and exceptions, there often is a "first come first serve basis" standard. This condition affects the ease of downstream systems to update the record with the correct identifiers. This can occur at any "entry point" to FSA including CPS, COD, Direct Loan Consolidation System (DLCS), DMCS, Personal Identification Number (PIN), and NSLDS.

Changes to a customer's identifying information currently are not communicated to all necessary systems processing data throughout the phases of the lifecycle; all systems should be able to send and receive such changes. It is not necessary to communicate every change to every system in every instance; however, such a capability must exist to ensure that important changes are communicated accurately.

3.1.2 Recommended Implementation Details

The first step in addressing this issue is to reduce the number of occurrences where invalid identifiers are being created. This can be accomplished by implementing SSIM, performing an SSA match, and by better educating the schools and students.

- Of the Person Business Entity "entry points" to FSA, CPS and PIN are currently the only ones that perform a SSA match. It is recommended that COD, DLCS, DMCS, and NSLDS also perform the match for identities that have not yet gone through a SSA validation.
- Resources should be devoted to a campaign that emphasizes and cautions schools about the data integrity benefits of a common identification method (SSIM) and the processing of good data, with valid SSNs, etc.
- FSA resources should communicate with the borrowers regarding the importance of submitting valid, correct data the first time, to avoid problems with processing aid (e.g. a message could be included on the paper and web applications for aid).
- Once information about a person has entered FSA there need to be controls in each system as to when the person's identifiers (SSN, Name, and Date of Birth) can be updated.

The following are the suggested verifications required for SSN changes:

1. Submission of a valid Social Security Card or Drivers License that displays the Social Security Number.
2. Receipt of a successful SSA match.
3. Change request received from a data provider who requires similar credentials.

The following are the suggested verifications required for Name and Date of Birth changes:

1. In the instance of a name change, proof of a marriage license, divorce decree, or legal name change document.
2. Change request received from a data provider who requires similar credentials.
3. Date of Birth corrections do not require additional documentation.

When there are changes to the identifying information, they should be communicated to all relevant systems at the time of receipt. For example, SSN changes should be communicated forward and backward in the life cycle, but it may only be necessary to communicate Name and Date of Birth changes forward through the lifecycle. To enable the most accurate change information, the communication of such identifier changes should include:

- Original or previous SSIM data
- Corrected or revised SSIM data
- Date/time the change was received
- Source of the change request

The last step in resolving this issue is to use the Person Entity Flow diagram (see Deliverable 123.1.2 As-Is System Data Flows) to identify the various touch points across the enterprise and to establish a common identifier process for validating/resolving identifier conflicts. Using SSIM and SSA as a basis, unsuccessful or partial matches should be sent to relevant systems for notification and exception processing.

3.1.3 Impacted Business Areas and Projects

The SSIM implementation will need to be incorporated as part of the business processes in the Application, Delivery, and Servicing Life cycle Stages. In designing the changes and enhancements necessary to accomplish the vision for SSIM the following systems will be affected CPS, NSLDS, COD, Ombudsman Central Tracking System (OCTS 2.0), Direct Loan Servicing System (DLSS), Conditional Disability Discharge Tracking System (CDDTS), DLCS, DMCS, Delinquent Loan Data Mart (DLDM), and Credit Management Data Mart (CMDM). These systems all contain information about the Person Business Entity. In addition to these internal systems and business areas, schools and financial partners will be affected regarding their communication to FSA about students. Experts from both schools and financial partners will be called upon to provide input when appropriate.

3.2   Enterprise Single, Integrated Student View

3.2.1   Description

There is no ability to pull data from systems across the lifecycle to present a single, integrated student view complete with current status of a student's aid and "workflow" indicators relative to the student. There is no way to link other forms of aid (Title III, TRIO, Upward Bound) to FSA aid. This impairs FSA's ability to:

- Provide complete customer service
- Perform comprehensive program analysis
- Perform comparative analysis at the student level

3.2.2   Recommended Implementation Details

Implementation of the Standard Student Identification Method should enable the linkage between a person's aid records within the FSA enterprise necessary to present the integrated student view.

3.2.3   Impacted Business Areas and Projects

To ensure the single, integrated student view spans the entire enterprise, all of FSA's Aid Business Processes in the Application, Delivery, and Servicing Lifecycle Stages will be impacted by the recommended SSIM solution. As mentioned in Section 3.1.3, the following systems will be affected: CPS, NSLDS, COD, OCTS 2.0, DLSS, CDDTS, DLCS, DMCS, DLDM, and CMDM.

3.3   Enterprise Routing ID

3.3.1   Description

There are no means within FSA to identify a Trading Partner Institution (School, Lender, Servicer, GA, etc.) and their current and historical relationships to other entities so that data from multiple stores within FSA can be aggregated for viewing or research. Further complicating the landscape, identifiers from bodies outside FSA such as the Data Universal Numbering Scheme (DUNS), Taxpayer Identification Number (TIN), and the Integrated Post Secondary Education Data System (IPEDS) number are used to support specific business process requirements within FSA. This has resulted in a lack of a consistent manner in which to identify trading partners across the FSA enterprise, regardless of system. Instead, trading partners are put in a situation of identifying themselves to FSA using different identifiers depending on the business process or system.

3.3.2   Recommended Implementation Details

The recommended solution is the implementation of the Routing Identifier (RID). The RID will provide a single, cross-system, common identifier for every trading partner regardless of trading partner affiliation, ownership structure, or type of interaction with FSA.

There are a number of possible RID implementation solutions. Based on the results of the RID Implementation Options Analysis (Deliverable 123.1.24), the current recommendation is to incorporate the RID into the Integrated Partner Management (IPM) Solution. The IPM Solution is envisioned as the future state entry point for new trading partners within FSA's business process life cycle. This option allows the first system in the processing life cycle to capture and maintain the trading partner's RID.

IPM is currently in the early stages of the visioning and conceptual design. If the IPM concept proceeds forward as part of FSA's future state vision, the recommendation is to incorporate RID within IPM. Under this scenario, IPM can be developed as a new Commercial off the Shelf (COTS) solution. If the IPM Solution does not move forward as part of the target state vision, a Common Origination and Disbursement (COD) Based Solution should be strongly considered for enterprise deployment of RID (For a detailed list of all the implementation options refer to the Deliverable 123.1.24 - RID Implementation Options Analysis.)

The solution and scope of this work is dependent upon the implementation option that FSA selects for the RID vision. Currently the deliverable that will detail this implementation option is due 11/17/03 (123.1.25 - RID High-Level Design).

3.3.3   Impacted Business Areas and Projects

Other than the PIN system, which does not store any trading partner information, all of FSA's systems would be impacted by the implementation of the RID. Those systems that perform business processes related to trading partner application, origination and disbursement, and oversight will be impacted the most.

3.4   Loan Identification Standards

3.4.1   Description

There is no enterprise way to uniquely identify an aid award (loan or grant). For example, COD has established an Award ID for Pell Grants and Direct Loans (combination of SSN, Loan Type, Academic Year, School ID, and Promissory Note number - 999999999SYYG999999001), NSLDS matches on five key fields, and the FFEL community is moving towards utilizing a set of rules commonly known as the Common Line ID. As such, a single integrated view of the loan across the enterprise is not readily available without tying all of the various identifiers together. Also, with multiple identification methods, there is a greater potential for duplicate loan records to be created, causing the history of the loan across systems to become fragmented or difficult to trace.

Currently, the most critical issue for loan identification is related to FFEL consolidated loans. When reporting a consolidated loan to NSLDS, there are no requirements for GAs to identify the underlying loans. These underlying loans may be of varying types and programs such as subsidized, unsubsidized, Title VII Health and Human Services, Title IV Perkins, etc. Without knowing these details, the breakdown of the underlying loans must be estimated when calculating the student's aggregate loan limits (unsubsidized or subsidized). Using estimates

often results in these limits being erroneously calculated.

3.4.2   Recommended Implementation Details

The key criterion for an award ID is for it to be unique. Uniqueness can be established simply by using sequential numbers or random characters. However, it is recommended that a common award ID is created that uses a number of basic fields to ensure uniqueness. These fields should include the corresponding person, institutions (school and financial institution), and other pertinent information such as program, loan type, academic year, and promissory note number. Using these fields would allow the various trading partners that create loan IDs, to more readily adopt the standard.

The establishment of a common award ID is an enterprise-wide endeavor and would affect FSA's trading partners as they conform to the standard. Initially, it is recommended that the ID be established internally with a cross walk tying the common award ID to external award identifiers. However, to reap the greatest benefits, all of the trading partners should eventually be required to adhere to the same standard.

In order to ensure the underlying loans for FFEL Consolidations are identified, it is recommended that policy changes are implemented requiring Guaranty Agencies to report all of the consolidation's underlying loans.

With the continual changes in the enterprise (i.e. COD, NSLDS reengineering efforts, Common Servicing for Borrowers, etc.) there is the need for determining the timeline and sequencing plan for integrating the common award ID into the FSA landscape. The scope of work for establishing a common award ID is in proportion to that of the SSIM and RID efforts. As such, in-depth research and analysis is required to ensure a viable solution is selected. The following two phased effort is recommended:

1) Current State Analysis –
- Further Refine Vision and Scope
- Define Goals and Objectives
- Document Current State
- Checkpoint with FSA business owners
-
2) Solution Determination and Planning -
- Document candidate Award ID Solutions
- Document candidate Award ID Implementation Methods
- Identify sequencing and initial candidate FSA systems
- Conduct working sessions to analyze and select the solution
- Develop enterprise High Level Design and Implementation Approach based on the selected solution

3.4.3   Impacted Business Areas and Projects

All systems which store and exchange loan level information will be impacted by the implementation of a common award identifier. These systems include COD, DLSS, DLCS, DMCS, CDDTS, CMDM, DLCM, OCTS 2.0, NSLDS, Schools, Lenders, and GAs. The business processes these systems conduct as part of the Application, Delivery, and Servicing Life Cycle Stages will be affected the most.

3.5   Accurate GA Reporting of Defaulted Loans

3.5.1   Description

When a borrower fails to make payments for 270 days on a loan, they go into default. For defaulted FFEL loans, stewardship of the loan is transferred from the Lender to the GA. After making a claim via the Forms 2000, the GA attempts to collect on the loan for a period (often four to five years). If the GA is unable to collect, they assign the loan to FSA by sending it to the Debt Management Collection System (DMCS). During the unassigned period while the GA holds the loan for collections, they are required to continue reporting the loan information to FSA via the NSLDS interface. Currently the level of reasonability and accuracy of this information is unclear, and the definitions and fields being reported are not consistent (e.g., not all GA collection fees reported on the Form 2000 are reported in the details sent to NSLDS).
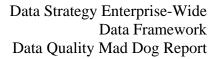
Also, since the GA is paid its original claim according to the Form 2000 rather than the NSLDS detailed data, there is less incentive to correct or update records rejected by NSLDS due to invalid data fields. If the GA is unable to collect on the loan, these incorrect records and data deficiencies have the potential to be passed on to DMCS. Furthermore, the process of assigning the defaults to DMCS is different for each GA and is handled in an ad hoc fashion, resulting in varying levels of quality and completeness for this data.

Another part of this issue concerns the accounting of the receivables established as part of the Forms 2000. The unassigned loans reported to NSLDS are also reported at the summary level to FMS on the Forms 2000. The GAs currently report only the reinsurance payment amount on the Forms 2000. For example, for a 98% insurance rate and a 95% reinsurance rate if there is $100 in defaulted loans, $98 is paid to the Lender by the GA, and $93.1 (the $98 X 95%) is invoiced by the GA to FSA on the Forms 2000. As such, the receivable is initially booked as $93.1 rather than $100. When the loans are assigned to FSA via DMCS the booked receivable then needs to be adjusted to the $100. However, since reinsurance rates have changed over the years and the summarized Form 2000 data does not provide this cohort information, the adjustment must be estimated and is not always correct.

3.5.2   Recommended Implementation Details

To address this issue, the current level of reasonability for an acceptable threshold must be determined for the detailed data in NSLDS as compared to the summary data reported to FMS on the Form 2000. There have been efforts to analyze the reasonability on an annual basis and there have been apparent improvements in the quality of the data. However, there needs to be

a more detailed analysis to determine the reasons for the differences (e.g. missing data, frequency, inaccurate data, inconsistent data definitions, etc.). This effort has begun and there currently is a task order where FSA is working with the current NSLDS subcontractor to understand the differences at a more detailed level and to establish reasonability criteria for a monthly basis.

With methods such as the NSLDS Reasonability check, cross-system reconciliation issues can be mitigated, however multiple entries points and data stores for the same data makes it difficult to completely eliminate the issues. For a more comprehensive solution it is recommended that GA FFEL default claims and collections reinsurance data ultimately reside in a central repository with one entry point to FSA. The NSLDS system currently provides the best option for this solution, however a detailed analysis should be conducted to ensure the definitions of what is being reported to NSLDS are consistent among GAs and the reported data provides the information required for all FSA functionality (NSLDS, DMCS and FMS). Furthermore, future NSLDS/Enterprise Data Warehouse re-designs must be considered when establishing an implementation sequencing plan.

After receiving the FFEL claims and collections details from the GA, NSLDS would pass the summarized data to FMS, allowing FMS to calculate the GA reinsurance claim payment based on cohort data and to establish an accurate 100% level, collections receivable. The GAs would continue to send in the current Form 2000, however the FFEL default claims and collections reinsurance fields would not need to be entered. For viewing purposes, these fields could be auto-populated by FMS using the summarized data received from NSLDS. With the GA's claim payments based on their reported loan level details there will be greater incentive to correct and update records rejected by NSLDS.

To implement the "GA to NSLDS, single entry point" solution a consolidated interface format is recommended. With the current FFEL and internal XML efforts, an XML interface should be considered. XML would allow FSA to verify the required core data blocks are reported consistently by each GA. Commonly-defined XML Core Components and XML-based tools also would enable the cleanup of the existing inaccurate FFEL default data. Furthermore, XML-based data modeling for the GA interfaces would provide system flexibility to simplify future interface changes and support new application and data exchange requirements.

It is also recommended that FSA give increased emphasis to the A133 Compliance Audits performed by external auditors for GAs. These audits verify the validity of the reinsurance claim and collections data sent by the GAs.

3.5.3 Impacted Business Areas and Projects

The business areas and projects affected by this issue are part of the Servicing Collections business process. As such the key systems and personnel impacted are: General Accounting Office (GAO), Chief Financial Office (CFO), OCTS 2.0, NSLDS, FMS, and DMCS (CSB). NSLDS, FMS and collections personnel would have to work closely with Guaranty Agencies to resolve the issue.

3.6 *Disbursement Updates to Application Process*

3.6.1 Description

Today, as a normal course of business, the Application system (CPS) receives updates from the Origination and Disbursement System (COD) regarding the disbursement of Direct Loan and Pell Grant awards for attendees at various institutions on a periodic basis (quarterly). The Application system uses these updates to designate applicants that need to be verified by the school. They also reflect the attendance of a student at a particular institution and indicate that communication to other institutions on behalf of that student may no longer be necessary.

The application process would be enhanced by receiving notification of these disbursements more frequently, real-time if possible. This would reduce the number of extraneous communications (ISIRs, etc.) to schools that no longer need information about a student who will not be attending their institution.

3.6.2 Recommended Implementation Details

This issue can be resolved in a number of ways, the most thorough of which is to consolidate the data used during Application with the data used in the Origination and Disbursement business process into a single data store. In doing so, the flow of information regarding disbursements would be inherently available to the application business logic and make retransmission or sharing of this information unnecessary. This consolidation of data from the two business processes would address more than this specific data quality issue and would fundamentally change the "front end" business processing logic of FSA. It would affect the current CPS/ FAFSA and COD systems most, and would also affect NSLDS and FMS internally as well as Schools and various Government agencies that validate applicant information externally.

An interim way to address this issue would be to implement a notification service either through a Middleware solution or a service that when initiated notifies the Application system when disbursement records are received. This service would receive a disbursement notification through a prescribed or published message and then generate an update to the Application system. These messages could be received from the Origination and Disbursement system, or from an entity outside FSA through a gateway service. This option would result in impacts to the CPS system for receipt of the records as well as the COD and potentially SAIG systems for generation and (re)direction of messages.

Implementation of the first option, combining the Application with the Origination and Disbursement business process, is a large scale multi-year effort that would require modifications to the many "front-end" systems, most notably CPS and COD. This effort would require a great deal of communication with external parties, especially the School community.

Implementation of the second option has fewer large-scale impacts and is a potential interim solution to the specific data quality gap raised in this issue. It would still require modifications and impact analysis to the CPS, COD and SAIG (gateway) systems.

3.6.3   Impacted Business Areas and Projects

The Application (CPS), Origination and Disbursement (COD) and External Gateway (SAIG) processes would be most affected by this initiative.

3.7   FAA's EFC Updates

3.7.1   Description

CPS is not always updated with FAA adjusted EFC calculations. Therefore, a student's financial aid package may not correspond with the student's eligibility as determined by CPS. Adjusting a student's Expected Family Contribution is, in effect, changing their eligibility for Title IV funds.

Financial Aid Administrators make changes to an applicant's Expected Family Contribution (EFC) calculation due to extenuating circumstances that cannot be communicated on the FAFSA. The Financial Aid Administrator can adjust one or more of the data elements used to calculate the EFC. It is important to note that an aid administrator cannot adjust the EFC formula, just the values that are used in the calculation. These changes are made at the school, and are not consistently reported back to CPS.
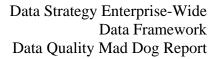
Currently, schools have options for reporting EFC changes. If an FAA calculation results in a higher EFC, meaning the student is eligible for less Title IV aid, and the Pell Grant award amount decreases, the school *must* report the EFC change to CPS. If only Campus-Based awards and Direct Loans are affected, the school can adjust/decrease the award amounts and is not required to report the new EFC to CPS.

If the recalculation results in a lower EFC, meaning the student is eligible for more Title IV aid, the school may either, 1) report the changed EFC in order to disburse more Pell Grant funds or 2) retain the original EFC and award the original Pell Grant amount. When the school decides to base the Pell Grant award on the lower EFC, they must first report the change to CPS and wait to receive an adjusted Institutional Student Information Report (ISIR) document before making Pell Grant disbursements. If only Campus-Based awards and Direct Loans are affected, schools may adjust/increase the award amounts without notifying CPS.

3.7.2   Recommended Implementation Details

Schools should always report adjusted EFC amounts to CPS. Since the CPS is FSA's central system for calculating and maintaining student eligibility information, it should be updated with FAA induced adjustments. As mentioned above, schools are only required to report EFC adjustments that will affect Pell Grant award amounts. Currently schools can report these corrections and updates electronically through third-party software, EDExpress or FAA Access to CPS Online. When a school makes a correction electronically for a student, signed documentation for the correction from the student and parent must also be submitted to CPS.

Schools should report all EFC adjustments, including those that only affect Campus-Based and Direct Loan awards, using these methods. If this action is required, the number of EFC changes that will be reported to CPS is currently unknown. It was noted during the detailed analysis stage that because of recent updates, most notably electronic Student Aid Report (SAR) distribution, CPS is more equipped to handle additional EFC changes from schools. In the past, when only paper SARs were distributed, requiring schools to submit all EFC changes and producing the SAR and ISIR documents to reflect these changes may have been too costly.

A larger scale solution than the one above, one that integrates the Application and Origination and Disbursement data stores within FSA, is mentioned in Section 3.6. This recommended solution would make all origination and disbursement information, including adjusted EFC amounts, available to the eligibility business logic. With this solution, sharing of information between CPS and COD would be unnecessary because the data stores for the two business processes would be integrated. As noted in Section 3.6.2, the consolidation of these business processes' information would address more than this specific data quality issue.

Implementation of the second solution, combining the Application data with the Origination and Disbursement data, is a multi-year effort that would require modifications to the many systems, most notably CPS and COD. This effort would require a great deal of communication with external parties, especially the School community.

Implementation of the first option is a potential interim solution to the specific data quality gap raised in this issue. It would still require modifications to the CPS, COD and SAIG (gateway) systems. Although requesting that schools report all EFC changes to CPS and preparing CPS to receive these changes can be done in a moderate time frame, *requiring* that schools report these changes cannot. Requiring schools to report all EFC changes, not only those affecting Pell Grant awards, constitutes a change in policy, which can only be done over an extended period of time.

3.7.3   Impacted Business Areas and Projects

The Application and Origination and Disbursement business processes will be impacted the most. As such, the ramifications for Schools, CPS, COD, FAA Online, SAIG, and EDE (EDExpress) all need to be considered when implementing the recommended solution.

3.8   Accurate Enrollment Status

3.8.1   Description

The accuracy and consistency of Enrollment status information is not high within FSA and participant systems. Enrollment data includes Current Status (Full/Half Time Student), Withdrawn, Anticipated Completion Date and PLUS Second Disbursement date. These values are important to all phases of the lifecycle as they are key indicators for servicing, default rate calculations and analytic functions of FSA. Inaccurate reporting of enrollment information may inappropriately trigger delinquency activity (due diligence) and defaulted loan processing. It may also create flawed metrics and research indicating the "success of the program" mission.

The effected systems, COD, DLSS and NSLDS all collect and handle the information differently. Listed below are the different methodologies for handling PLUS Second Disbursement Date and Anticipated Completion Date data.

PLUS Second Disbursement Date:
Currently the second disbursement date is not a required field on the XML common record. Because repayment is set for 60 days after final disbursement, borrowers are improperly entering repayment 60 days after the first disbursement, the only date provided.

The accuracy of Anticipated Completion Date information was also indicated as a high priority portion of this issue. The research for this report has found that COD has already implemented a solution to ensure more accurate information. COD makes a calculation to determine the date. This information is passed on to DLSS and then NSLDS.

3.8.2 Recommended Implementation Details

In order to prevent PLUS borrowers from entering repayment too soon, a work around has been implemented to estimate the Second Disbursement Date. The date is calculated as the point half way between the first disbursement and the end of the loan period. However, because this work around is only an estimate, borrowers could still enter repayment too soon or too late. As such, it is recommended that the Second Disbursement Date be made a required field on the XML Common Record. This enhancement is currently being recommended as part of the '04 Common Record implementation.

A requirement of this sort would require a regulation change, which considerably lengthens the timeline for implementation. It should also be noted that in special cases, such as PLUS borrowers in study abroad programs, borrowers attending a foreign school, and schools with single disbursement waivers, funds can be using single disbursements. These special cases should be considered when exploring solution options.

As mentioned, the group found that COD has already implemented a solution to maintain more accurate information for the Anticipated Completion Date.

3.8.3 Impacted Business Areas and Projects

The '04 XML Common Record implementation will need to be incorporated as part of the origination and disbursement business process. COD and Schools will need to work closely together to ensure the change is properly implemented. As part of its Repayment processing DLSS then will be able to discontinue its current work around procedure.

3.9 School Eligibility Synchronization for FMS & GAPS

3.9.1 Description

GAPS and FMS receive and/or process school identification status and eligibility data updates at different times. This can result in errors being returned from GAPS to multiple systems to which GAPS sends updates (COD, FMS, etc.). This impacts a schools ability to draw money in

GAPS. The frequency of these errors has been reduced to perhaps one occurrence per week, however, the effort to resolve the errors is significant and requires coordination across operations and systems (Post-Secondary Education Participation System (PEPS), FMS, GAPS, ED Central Application Processing System (EDCAPS) Recipient System (RS)) groups.

Updating eligibility status and DUNS numbers in GAPS and PEPS is a manual process. New school grantee DUNS updates and TIN updates are sent via email to GAPS. FMS receives a daily feed from PEPS, but FMS does not update daily, therefore, DUNS number mismatches occur.

The Department of Education is made aware of DUNS number changes through two methods, either schools notify ED (Office of Chief Financial Officer - OCFO) that their grantee DUNS number has changed or the Dun and Bradstreet Service sends a feed to the Recipient System (RS) of EDCAPS. OCFO sends requests for updated DUNS numbers on a quarterly basis. When a school notifies OCFO, an email notification is sent to FMS and PEPS staff. The notification triggers manual updating processes in those systems. When the change is received via the feed from the DUN and Bradstreet Service, the Recipient System is updated and instantly updates GAPS (real-time), however, notification to FSA is not automated. Either way, there is a period of time in which FSA systems are not updated. In this scenario, COD may continue to receive records that appear on the GAPS Feeder System Error file from GAPS when the DUNS number doesn't match (error #7 or #13), indicating that the grantee DUNS number is missing or invalid. This error prevents schools from drawing funds. COD staff looks in GAPS to see if the DUNS number has changed, and if so, COD is manually updated.

If the DUNS number is missing, (no grantee DUNS in GAPS), FSA staff determine if there is an OCFO update in progress, if not, Title IV Delivery is notified, and informs Case Management and Oversight who then contact the school to receive the DUNS number. When the DUNS number is received, Title IV Delivery makes the update in PEPS.

When a change of affiliation occurs to a school, the DUNS number of the purchased school changed to the purchasing institution's DUNS number. Updates made in GAPS and PEPS are manually processed as described above. There are issues related to the timing of the updates that may impact records in process. There were 39 Changes of Affiliation in the 01-02 award year. These changes involve hundreds of campuses, potentially thousands of students, and hundreds of staff hours across various offices in the Department.

The group also questions why FMS tries to match the DUNS coming in from COD to the DUNS in FMS and recommends this check no longer be run.

3.9.2   Recommended Implementation Details

There are two recommended implementation steps:

1) Implement interfaces-

- From PEPS to OCFO (GAPS) providing the Daily School File. This will provide new school set up data to GAPS electronically if GAPS reads the change records related to a new school set up or change of affiliation (changed DUNS number). OCFO may find other updates to a schools demographic and participation information helpful as well. OCFO may also want these changes posted to the Recipient System.
- From OCFO (GAPS) to PEPS so that PEPS may receive changes to grantee DUNS numbers electronically. PEPS would then provide updates to the FSA enterprise.

2) Implement daily processing of the PEPS School File by FMS. FMS currently has an outstanding Change Request (CR) to fix this issue. A new sweep code is currently being tested. This code will apply the school file to all of the programs and should ensure FMS incorporates all aspects of the PEPS file. FMS also has an outstanding CR that has not yet been approved which recommends the DUNS number no longer serve as a validation field for incoming COD records.

3.9.3   Impacted Business Areas and Projects

While ensuring School data is accurate and up to date is largely a function of the Institution Participation Oversight business process, all of the enterprise's business processes are impacted due to inaccurate information. PEPS and FMS are the key systems that will be impacted by the recommended solutions. Additionally since PEPS is on the EAI bus, an impact analysis should be initiated to determine the feasibility of sending GAPS the Daily School File.

3.10   FMS Error Files

3.10.1 Description

Currently FMS only sends internal system interface error reports to COD. While FMS does capture errors in its processing regarding all system interfaces, these errors are not returned via a standard return file process, and the "feeder" systems do not process the errors (except for COD). 90% of the errors are technical issues and not easily resolved by the "feeder" system. Thus, the current process is for FMS to monitor and work the errors. Many of the remaining errors are user related consisting of changes to the format, header/trailer, or simply human error. For these cases, system owners are walked through necessary revisions. An immediate example is the accounts payable file sent from DLSS to FMS. There is no error file returned to DLSS indicating whether payments were processed successfully. System owners can run a report and find out that a file did not process but it is a detective activity rather than a more proactive approach.

There are data transfers between FMS and COD Loan Origination (LO), Legacy LO, DLCS, DMCS, DLSS, NSLDS, Pell Grant, Campus Based System (eCB), GAPS, and GA Forms Loading internally and External Trading Partners/Lockbox and Student Loan Marketing Association (SLMA) externally. Although actual error reports are not generated, there is a monitoring process for all of the transfers. The following is a breakdown of all of the interfaces' error monitoring processes:

- Currently COD receives a transaction level "data error response transaction" that updates the COD system with the error information. FMS runs a report two times per week and works the errors.
- For Legacy LO and DLCS, FMS generates a Control and Error report during the regular processing of LO and DLCS transactions. The report is reviewed by FMS to confirm that there were no transaction errors.
- DMCS transactions generate Fail Alerts when a transaction fails. The system sweeps for errors and generates an Oracle Alert notice indicating processing errors. FSA CFO receives this report and requests FMS to review.
- For Pell transactions Oracle Alerts are generated when the load fails. It is sent to FSA and FMS consultants for review.
- For eCB, FMS consultants review a Transaction Log for errors after scheduled files are received, and make any necessary fixes.
- Within the GAPS interface there are two types of data transfers that occur. Files sent from FMS to GAPS and files from GAPS to FMS. Files sent to FMS from GAPS go into a GL Interface table. If processed properly, these transactions are sent to the feeder system, otherwise they remain in the GL Interface table and a subsequent alert indicates "File Name X is in error." This issue is then worked by consultants within FMS.
- For data that is being sent from a feeder system to GAPS via FMS, FMS receives the file and generates a Control and Error report and processes data over to the outbound file. Once FMS reviews the Control and Error report to verify that the information was received and went out properly, they (FMS) send an email to GAPS advising of the data transactions that were sent and request a confirmation of receipt. GAPS verifies it has received the transactions and sends a response email indicating that all the transactions were received properly.
- The error processing for NSLDS quarterly Loan Processing and Issue Fee (LPIF) and AMF transactions is manual. Any errors are usually formatting errors consisting of incorrect naming conventions or header/footer changes. FSA CFO will notice that they have not received the scheduled information and they request FMS to review. FMS consultants review the transaction log for specific transactions.
- An Error & Control Report is generated for the DLSS interface. If there is an error in processing the transaction, Oracle sends and email to FMS and the error is worked by FMS personnel.
- Transfers with Lenders and the Lockbox entities are handled in the same fashion as NSLDS. Any errors are usually formatting errors consisting of incorrect naming conventions or header/footer changes. FSA CFO will notice that they have not received the scheduled information and they request FMS to review. FMS consultants review the transaction log for specific transactions.
- SLMA sends information monthly, quarterly and annually. FMS then posts the results of the information to the Forms 2000. SLMA knows the schedule and checks to see if the information is posted. If not they contact FMS. Essentially, the error processing is done by the "feeder" system, who notifies FSA that there is an error that requires correction at FMS.

- Guarantors go into Forms 2000, an FMS system extension, to input their monthly, quarterly and annual report data, the form is then loaded for processing. If errors are generated during the attempt to load they are stored in the program log, but nothing happens until the Guaranty Agency contacts FMS Operations and asks them to research the issue.

3.10.2 Recommended Implementation Details

It is recommended that the FMS standardize its error processing by utilizing the current Oracle Alert and Report system more completely. FMS should have Oracle send alert messages to all necessary personnel.

The Oracle system generates a Log Report for all programs executed in FMS. The log report is available to all users submitting request as well as the System Administrator users. Oracle also has the ability to generate reports and send alerts and emails with varying levels of detail to an assigned individual or group. The assigned individual would be advised that a file had errors that prevented successful processing. Oracle Batch Level Alerts advise that "items from this batch failed." These alert message recipients can be determined by the nature of the error. Mapping errors should be resolved within FMS and data quality issues should be addressed by the system owners.

Oracle can send a message that will advise the system owner how to make necessary process changes when the error is not technical. When the error is technical, Oracle can send an email with transaction details included.

Initial reaction might be to generate reports back to the system owners for resolution; however, depending on the types of errors, it might be more efficiently resolved within FMS with advice or simple notices going out to the systems for quality control audit purposes. Transaction errors as opposed to data quality errors might be too technical to be resolved by the systems and could cause a delay in resolution and processing.

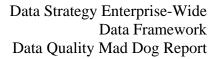### 3.10.3 Impacted Business Areas and Projects

FMS business processes cross the entire enterprise and all of FSA's Lifecycle stages. While the changes needed to implement this solution will occur in FMS, they will need to be communicated to a number of internal and external systems and partners. GAPS, COD, NSLDS, eCB, DLCS, DLSS, DMCS, Lenders/Lockboxes, and GAs would be most affected by this initiative.

3.11 SSA & INS Validation for PLUS Borrowers

3.11.1 Description

The award of Title IV Aid to a student borrower requires the submission of a FAFSA and therefore subjects that borrower to, among other things, a verification of Social Security Number (SSN) by the Social Security Administration (SSA) and potentially citizenship verification by the Immigration and Naturalization Service (INS). However, parent borrowers desiring to receive a

Parent Loan for Undergraduate Students (PLUS), either through the Direct Loan or FFEL Program, do not pass through this same validation, nor do the students for whom the PLUS loan funds are borrowed if they did not submit a FAFSA. This can result in the lending of Title IV aid to an ineligible borrower. FSA, as well as the School community, would like to establish a process for executing these validations to eliminate this possibility.

In addition to this PLUS verification, there is also a desire for all borrowers to be passed through verifications pursuant to the USA PATRIOT Act. This would mean that all FAFSA applicants and borrowers would be subject to additional verifications and screenings associated with the USA PATRIOT Act.

3.11.2 Recommended Implementation Details

To address the need for PLUS borrower validations, it is recommended that FSA create a common service through which a borrower can be submitted for verification by SSA, INS and other Federal Agencies with which a check is required. In the short term this service could be provided from the current executer of these validations, the CPS system. As this service takes on additional volume and users, in the form of additional systems, this service should be decoupled from a CPS and integrated into the SSIM solution.

In order for this service to be successful it will also require the creation of a process for obtaining key identifying information for all aid recipients including PLUS borrowers, either through the completion of a FAFSA or an alternative form. Isolating this service as a piece of business logic that is accessible by multiple parties reduces the redundancy of maintaining business logic in multiple places and increases the consistency with which verifications are performed.

In practice, any additional verification, whether it targets the USA PATRIOT Act or a standard credit check, can be added to the service engine and then triggered through the use of indicators for the various types of verifications required by the subject request.

Decoupling the government agency verification processes (e.g. SSA match) from the Application process would have the largest impact to the current CPS system. The impact to COD and the external user community is their need to create an interface or call to the new service. These modifications can be performed in a phased manner over a period of time to lessen the impact to the CPS and COD systems.

Modifications to the Application process to include USA PATRIOT Act verification will also involve regulatory changes and at the very least mean a major impact to the Application and Origination and Disbursement business processes. As a result, these changes would likely require a multi-year implementation plan.

3.11.3 Impacted Business Areas and Projects

The Application (CPS), Origination and Disbursement (COD) and External Gateway (SAIG) processes would be most affected by this initiative. Schools and the Financial Partner community would also be affected by the need to verify all PLUS borrowers.

3.12 Static DMCS School Data

3.12.1 Description

The school data in DMCS, specifically institution demographic information, is static. DMCS received an update of the school demographic information over a year ago and has not gotten systematic updates since.

DMCS needs accurate school demographic information, including a valid school ID. This information is pivotal to the collections business process. DMCS accepts loans for assignment and servicing based on a number of edits, one of which is if the school ID submitted by the assigning entity is "valid." If there is no matching school ID on the DMCS database, the school identifier is considered to be invalid, and the loan is rejected. When this occurs, it is impossible for DMCS to accept the loan for assignment/servicing.

When loans are rejected by DMCS, an error file is sent to the submitting entities: DLSS (Direct Loans), Guaranty Agencies (FFEL Loans), and Schools (Perkins Loans). These entities are responsible for reviewing the error files for debts that have been rejected by DMCS, correcting the errors and resubmitting the debts. Unfortunately, since the school IDs have not been updated, DMCS will continue to reject the resubmitted debts.

3.12.2 Recommended Implementation Details

DMCS should receive school demographic information periodically in a consistent, systematic way. To accomplish this, PEPS can send DMCS the school file. Necessary actions must be taken so that when the file is received, its contents can be successful read into the DMCS system. There are various options that DMCS can execute regarding the receipt and processing of the Daily School File. For example, Collections personnel can determine the frequency of receipt; one that best reflects their need for school demographic updates. They may also choose to process and store only those records that have changed since the file was received last. Other FSA systems take this approach, reading only the change records from the Daily School File.

It was noted that DMCS will need to receive and process the entire file initially. After the initial transfer it may only need to receive updated school demographic data monthly. Since PEPS normally sends out the School File on a daily basis, they may have to make some minor adjustments to deliver it monthly to DMCS.

As mentioned above, the majority of the effort would be on the DMCS side. They will need to ensure that the school records, when received from PEPS, are processed correctly. This issue and its proposed solution only affect PEPS and DMCS.

3.12.3 Impacted Business Areas and Projects

The majority of the effort required to implement a PEPS to DMCS school file interface would be on the DMCS side. They will need to ensure that the school records, when received from PEPS, are processed correctly. Addressing this issue will impact Servicing Collections business process.

3.13 Anomalous Name Cleanup

3.13.1 Description

NSLDS has 13,000 anomalous name records with numbers in the first and/or last names.   For example, the number "1" used for lower case "l" or zero for the letter "O".   These errors can prevent record matches.

3.13.2 Recommended Implementation Details

As part of the Data Strategy initiative, the Standard Student Identification Method (SSIM) team is examining the matching problems presented in this issue in greater depth and currently creating an Implementation Approach that will detail potential methods to alleviate issues such as these. The SSIM team has verified that this error may already be corrected in the proposed algorithm and that if not, the necessary code will be added. The Implementation Approach Deliverable is scheduled for completion in September 2003.

3.13.3 Impacted Business Areas and Projects

The SSIM implementation will need to be incorporated as part of the business processes in the Application, Delivery, and Servicing Lifecycle Stages. In designing the changes and enhancements necessary to accomplish the vision for SSIM the following systems will be affected CPS, NSLDS, COD, OCTS 2.0, DLSS, CDDTS, DLCS, DMCS, DLDM, and CMDM. These systems all contain the information about Person Business Entity. In addition to these internal systems and business areas, the schools and financial partners will be affected in the ways they communicate to FSA about students. Experts from both schools and financial partners will be called upon to provide input when appropriate.

3.14 GA FFEL Reporting to NSLDS

3.14.1 Description

The FFEL data reported to NSLDS by the GAs submitters is not reported at a consistent or timely interval to enable quality analytics. In addition, the infrequency of the feed schedule does not allow the most current information to be available.

External Data Providers submit information to NSLDS at a pre-arranged interval that varies by agency allowing time for the agencies to run the necessary production to get the information sent and for NSLDS to get the information on to their system. If a user is not aware of this schedule the information obtained for reporting and analysis may be incomplete, inaccurate, or out dated.

3.14.2 Recommended Implementation Details

This issue may be resolved through educating data users regarding the feed schedule so that users understand when the most complete and correct data is available. However, in addition to user education, a more frequent (weekly) feed schedule should be considered.

It is recommended that the various Data Provider Production Schedules be made available to users. Currently, schools can see when the most current data will be available on NSLDS by viewing the Data Provider Production Schedule via the NSLDS website. For other external entities, the calendar should be posted to Information for Financial Aid Professionals (IFAP) and on the Financial Partners (FP) portal.

Internally, the schedule needs to be made more readily accessible. The Production Schedule should be made available to all internal users of NSLDS information; this requires a security change on the NSLDS web page to "turn on" the view to ED users. It is also recommend that the entire production schedule including DLSS, DMCS and Student Status Confirmation Report (SSCR) feeds, be posted so that ED users can determine the best time to capture the most up to date information for the data they are collecting.

There may not be a way to arrange for timelier reporting under the current reporting format. While the benefit of more frequent feeds is not disputed, consideration must be given to the impact to the data providers. Currently ED does not require data providers to submit any more frequently than monthly or quarterly. In order to get more frequent feeds ED would need to change the current requirements and this will have a huge impact on the providers. For example, one guarantor has production runs, including but not exclusive of the NSLDS feed, that take an entire weekend to complete. It must be done over the weekend because it affects their access to the information. The guarantor uses every weekend to accomplish the various feeds they must do. Increasing the feeds to NSLDS would impact their cost, man power and access to their own information, decreasing their efficiency. A redesign is being considered that will address the reporting format and possibly allow for more frequent reporting, but it is at least 3-5 years out. When the interface redesign takes place this issue and the benefits of increasing the GAs reporting frequency should be considered.

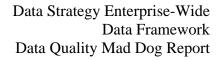### 3.14.3 Impacted Business Areas and Projects

It is essential that the recommended communication and education be provided to FSA's Trading Partners, FSA Analysts and Management, and any other NSLDS end users.

3.15 SAIG Dummy ID Access

3.15.1 Description

Occasionally Trading Partners sign up for SAIG access and batch functions with "dummy" identifier values. Enrollment can occur via the SAIG Enrollment Web Site or by mailing in a paper form. Aside from their Department of Education issued identifiers (e.g. Office of Post-Secondary Education ID (OPEID), GA Code, Lender ID, etc.) users must provide information

such as SSN, date of birth, and mother's maiden name to sign up for services through Participation Management.

This information is used to authenticate a user when he or she performs secure activities within SAIG. These activities include resetting a password and viewing, modifying, deleting or adding enrollment services.

For all users that sign up of the SAIG Enrollment Web Site, these data fields are sent to the PIN system. These records are written to the PIN database and PINs are issued to all Participation Management users that enroll online. Trading Partners use these PINs to access FSA online functions such as FAA Access (CPS Online).

There are some instances when users sign up with dummy identifier values. These values include: SSNs of 111-11-1111 or 123-45-6789, mother's maiden names of Jones or Smith, and dates of birth of 01-01-2001. Currently, there are limited validity checks done on this information when it is entered on the SAIG Enrollment Web Site.

3.15.2 Recommended Implementation Details

The first step is to formally establish a policy prohibiting the use of inaccurate identifier information during enrollment. This policy should be officially communicated to Trading Partners that violate this policy. Currently, Trading Partners that use inaccurate information for enrollment receive a warning telephone call from CPS staff.

In tandem with a formal policy communication, validity checks for the information entered on the SAIG Enrollment Web Site should be implemented. These checks would test user input for values that are clearly incorrect, such as a Social Security Number of 111-11-1111. These front-end checks cannot completely eliminate "dummy" information; for example, a mother's maiden name of Jones would still be accepted, but it should cut down on the number of occurrences. It has been noted that, since the documentation of this issue, there have been validity checks incorporated into the SAIG Enrollment Web Site. These checks are able to identify and eliminate certain incorrect SSN values such as 111-11-1111, 123-45-6789, and 987-65-4321. Although these checks are not exhaustive they do cut down on the entry of incorrect information. There are currently no front-end validity checks for other fields such as date of birth and mother's maiden name.

The front-end validity checks mentioned above are not as comprehensive as performing a Social Security Number match. In order to most effectively reduce the number of invalid IDs, users' information could be verified with the Social Security Administration. Although this check provides a thorough solution, the need for this type of authentication, taking cost in to consideration, should be explored.

3.15.3 Impacted Business Areas and Projects

The business processes impacted by this issue and its resolution are Partner Application and Oversight. The need for valid identifiers needs to be communicated to the Trading Partners, and any validations will affect the Participation Management and PIN systems.

3.16 Audit Guide: GA AMF Reconciliation & Monitoring

3.16.1 Description

The Account Maintenance Fees (AMF) for GAs is forecasted for three quarters. The fourth quarter is used to "true up" the actual Account Maintenance Fee due to the Guarantor.
It is unclear how these transactions are reconciled or monitored. There is also some question as to how VFA Fee Payments and Performance Measures are monitored and reconciled.
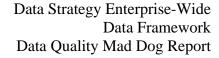
3.16.2 Recommended Implementation Details

It is confirmed that there are reconciliation and monitoring tools in place for AMF and VFA Payments. Currently the guidelines are included in the Financial Partner Guaranty Agency Review Guide. This information and where it is published needs to be communicated to both external and internal users via scheduled regional meetings and emails respectively.

The Mad Dog group assigned to this issue collected the following information regarding the AMF and VFA fees:

- As previously stated, the Account Maintenance Fee is estimated based on the first three quarters, and then the fourth quarter is used to "true up" the actual guaranty amount. For the fourth quarter reconciliation, NSLDS sends AMF numbers to FMS who uses the data to calculate final payment. FMS generates invoices that are reported to ED CFO for Treasury disbursements to guarantors. Treasury then sends confirmation to FMS via ED CFO.
- For each fiscal year the FSA has a specific amount of funds allotted to pay Account Maintenance Fees to Guarantors. If the total amount due to Guarantors exceeds the amount allotted to FSA, Guarantors are instructed to transfer funds from the Federal Fund to their Operating Fund. A letter is sent to the organization advising of, the amount they have guaranteed, the amount they have received to date, and the amount still due them. They are advised how much will be paid to them from Treasury and are further instructed to pay themselves from the Federal Fund to reconcile any difference between the amount paid by FSA and the total amount due.
- As this issue relates to the VFA Fee Payments and the Performance Measures, the process is somewhat more manually regulated by the External Regional Reviewers. The Reviewers visit guarantors and perform a variety of audits on different areas of the business, including, the VFA Fee Payments and Performance Measures. GAs are paid a fee for the work they do (VFA Fee) and the more they do correctly the more money they make (Performance Measure). The fees are calculated on a volume scale. The benchmarks they must meet for each activity are documented. Agencies go online and

submit their request for payment via a section of the Forms 2000. FSA reviews to ensure that the calculations are correct and justified based on the reviewers reports etc.

3.16.3 Impacted Business Areas and Projects

It is essential that Regional Reviewers, FSA Personnel (especially NSLDS and FMS), and Guaranty Agencies receive the necessary education and communication as to what the AMF and VFA monitoring procedures are and where information concerning them can be found.

Appendix A: Issue Analysis Summary

Due to the size of the Appendices, separate files have been created for ease of distribution. Please see file TO 123.1.3 Data Quality Mad Dog Report Appendix A Issue Analysis Summary.doc.

Appendix B: Top Ten Issues Detailed Analysis

Please see file TO 123.1.3 Data Quality Mad Dog Report Appendix B Top Ten Issues Detailed Analysis.doc.

Appendix C: Quick Hits Detailed Analysis

Please see file TO 123.1.3 Data Quality Mad Dog Report Appendix C Quick Hits Detailed Analysis.doc.

Appendix D: FSA Participants

Please see file TO 123.1.3 Data Quality Mad Dog Report Appendix D FSA Participants.doc.

Appendix E: Meeting Minutes

Please see file TO 123.1.3 Data Quality Mad Dog Report Appendix E Meeting Minutes.doc.

Appendix F: Comprehensive Mad Dog Issue List

Please see file TO 123.1.3 Data Quality Mad Dog Report Appendix F Comprehensive Mad Dog Issue List.doc.

Appendix G: Assumptions

Please see file TO 123.1.3 Data Quality Mad Dog Report Appendix G Assumptions.doc.